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## NEW LINGUISTIC FAMILIES IN CALIFORNIA

By ROLAND B. DIXON AND A. L. KROEBER

THE authors recently announced<sup>1</sup> the determination of a common origin for several of the groups of native Californian languages hitherto believed to constitute distinct stocks or families. As some further time must elapse before the material on which the conclusions are based can be published, and as some interest has been manifested in the matter, a few preliminary notes indicative of the character of the determinations may be worth while.

### PENUTIAN

The Penutian family is perhaps the easiest of recognition of any, but the large number of dialects comprised in it,—more than sixty,—and the peculiar character of the sound changes between them, have heretofore obscured many resemblances that a new arrangement of evidence reveals very clearly.

The word for bow is typical. The principal forms in the five languages or families, as they have previously been thought to be, are:

Yokuts:	<i>dayap, dalap</i>
Wintun:	<i>kulul, kulsak</i>
Costanoan:	<i>lawā, šonok, tanuka</i>
Maidu:	<i>pandak</i>
Miwok:	<i>soloku, kono, tanuka</i>

Such a list, far from being convincing, is not even promising. Rearranged, it shows:

		<i>Bow</i>
Wintun	<i>ku lu l</i>	
	<i>ku lsa k</i>	
Maidu	<i>pa nda k</i>	
Yokuts	<i>da la p</i>	
	<i>da ya p</i>	

<sup>1</sup> *Science*, N. S., XXXVII, 225, 1913.

Miwok	<i>ta nu ka</i>
	<i>so lo ku</i>
	<i>ko no —</i>
Costanoan	<i>šo no k</i>
	<i>ta nu ka</i>
	<i>— la wa</i>

It is obvious that these words compel the reconstruction of an original form very close to *tšlšk*, in which "š" in both syllables represents either an *a* or a back vowel.

Similarly, the words for

*Three*

Wintun	<i>pan ol</i>
Maidu	<i>sa pwi</i>
Yokuts	<i>šo pin</i>
Costanoan	<i>ka pxan</i>

represent an original *sšpšn*, in which the first vowel is farther posterior in articulation than the second. Maidu *w*, and Costanoan *x* after *p*, are parasitic, Wintun *ol* is probably a suffix, and the *k* of Costanoan replaces *s* by a very frequent equivalence, which sometimes extends also to *h* and *x*.

Again:

*Fire*

Maidu	<i>sa</i>
Yokuts	<i>u šit</i>
Miwok	<i>wu ke</i>
Costanoan	<i>šoto</i>

The original form must have been *wuSšt* or *uSšt*. The second *o* of *šoto* is not original.

In all three of these stems an initial syllable is lost in different dialects. Such alterations are not rare, and do much to disguise indubitable resemblances.

The *s-k* equivalence is found also in the words for

*Liver*

Wintun	<i>tši la</i>
	<i>te Li</i>
Maidu	<i>kü la</i>
Yokuts	<i>da la piš</i>
	<i>di p</i>
Miwok	<i>ku la</i>
Costanoan	<i>si re</i>

The original form would be *sɬla* or *kɬla*, or possibly *sɬlap*, since *iš*, usually in the form of *-oš*, *-uš*, is a recognizable Yokuts noun ending. The above arrangement also explains Yokuts *dip*, which without the transition form *dalapiš* could scarcely be connected with *tšila* or *kula*. It is further clear that Wintun surd *ɬ*, which does not occur in the other languages, represents at least in some cases original sonant *l*.

One further example may suffice:

				<i>Forehead</i>
Wintun	<i>tei</i>	—	—	
	<i>sihi</i>	<i>n</i>	—	
Maidu	<i>sü</i>	<i>ndu</i>	<i>k</i>	
Yokuts	<i>ti</i>	<i>li</i>	<i>u</i>	
	<i>pi</i>	<i>li</i>	<i>u</i>	
Miwok	<i>to</i>	—	<i>kosu</i>	
Costanoan	<i>ti</i>	<i>ma</i>	—	

The original form is more difficult to frame, but was perhaps *tinɬk*. Yokuts final *u* may be for *w*, from *k*.

The two Yokuts terms *tiliu* and *piliu* show a permanence of vowels but radical variability in consonants, which, especially for initial consonants, is quite characteristic within larger dialect groups of this family, but unusual in some more familiar forms of human speech.

All of the examples chosen point to original triconsonantal and probably disyllabic stems. It appears that such is the typical Penutian root, whether in noun or verb. The monosyllabic or biconsonantal stems which are especially frequent in Maidu seem mostly to be reductions of original longer forms.

There is available enough information on the structure of the five Penutian languages to prove their genetic affinity beyond a doubt even without recourse to lexical similarities. This relationship would have been recognized previously, were it not that attention has been directed chiefly toward phases of structure that, while conspicuous, were not very typical of the group in question; and especially because comparisons have been instituted between single languages instead of the whole five. In the compass of the present notice, it is impossible to begin to enumerate the structural re-

semblances; but, as at least an outline of the grammar of each of the Penutian languages is in print, this is scarcely necessary. It will be sufficient to call attention to the list of case forms given below, and to specify a few of the most typical fundamental traits of the family.

Penutian possesses an elaborate and delicate system of vowel gradations or mutations. Etymological composition is scantily developed. Prefixes of any sort are totally lacking. The noun is provided with seven, and probably never more than seven, true cases. The verb does not express instrumentality or location, as it does in so many other American languages, but is altered only to express categories which in the main are expressed also in Indo-Germanic conjugation: intransitiveness, inception, and similar ideas; voice, mode and tense; and person. A true passive occurs. There was originally a full set of pronominal suffix forms used with verbs.

All of the five individual languages are simpler in structure than this ideal scheme. The differences between them are due largely to their having sloughed off different ones of these traits. Thus Costanoan has entirely, and Miwok at least largely, lost the ablaut system which Maidu and Yokuts retain. On the other hand, Miwok has kept quite fully, or even developed, the personal endings of verbs, which Yokuts has dropped completely, while in Wintun, Maidu, and Costanoan there remain only fragments. The unparalleled instrumental verb prefixes of Maidu are clearly a special growth, due to freer word-compounding in that language than in the others.

#### PENUTIAN CASE SUFFIXES

	WINTUN	MAIDU	YOKUTS	MIWOK	COSTANOAN
Objective	-m	-m*	-a, -i	-i, -iš	-e, -ne, -se, -s
Possessive	-n	-ki	-in	-n, -ñ	————
Instrumental	-in	-ni	-ni, -ñi	-s, -su	-sum, -yum
Locative	—	-di	-u	-to, -t	-ia, -tak, -ika
Ablative	—	-nan	-nit	} -m, -mō, -am }	-m, -me, -mo
Terminative	—	-nak, -na	—		
Comitative	—	-kan	—	-kōla, -kō, -li	-tsu

The general evolution of Penutian seems to have been from complex to simple, as in Indo-Germanic, to which great family, it

\* Nominative.

may be remarked in passing, it is, in the outlines of its plan of structure, remarkably analogous.

# HOKAN

While the Penutian territory is unusually compact and conformable to physiographical factors, the Hokan area in California is quite irregular and broken.

The lexical similarities and the sound equivalences which they involve are however not less evident.

## HOKAN STEMS

	<i>Tongue</i>		<i>Eye</i>	<i>Water</i>	<i>Stone</i>	<i>Sleep</i>
Karok	<i>a p</i>	<i>ri</i>	<i>yu p</i>	<i>a s</i>	<i>a š</i>	
Chimariko	<i>i pe</i>	<i>n</i>	<i>i so t</i>	<i>a ka</i>	<i>k'a</i>	
Shasta	<i>a p</i>	<i>li</i>	<i>oi</i>	<i>a tsa</i>	<i>i tsa</i>	<i>i ts mi</i>
Pomo	<i>ba</i>	<i>l</i>	<i>ui</i>	<i>ka</i>	<i>xa be</i>	<i>si ma</i>
Yana	<i>bawa' la</i>			<i>ha -na</i>	<i>k'ai -na</i>	<i>sa m</i>
Esselen				<i>a sa -nax</i>	<i>šie fe</i>	<i>a tsi n</i>
Yuman	<i>i pa</i>	<i>lya</i>	<i>i šo</i>	<i>a ha</i>	<i>a vi</i>	<i>i s ma</i>
Original Form	<i>a pa</i>	<i>la</i>	<i>i yu?</i>	<i>a sa</i>	<i>ka ve</i>	<i>si ma</i>
	<i>i pi</i>	<i>li</i>		<i>a ha</i>	<i>ha ve</i>	<i>i s ma</i>

The metathesis of vowels, as in *apri*, *apli*, *ipalya*; *yup*, *išo*, *oi*, *ui*; *isma*, *atsin*, is conspicuous in this family.

While the stems are polysyllabic in appearance, none of those cited contains more than two consonants. It is therefore possible that the language is built up from monosyllabic roots enlarged by vocalic increments.

The *s-h-k* sound shift is again in full evidence.

So thorough are the correspondences that even at this early stage of analysis it is clear that in some or most respects the Diegueño dialect of Yuman is nearer to the remainder of the family than the more specialized Mohave. Pomo is greatly worn down, phonetically, by attrition. Shasta is the most altered group of dialects in the family. The original type is perhaps best preserved, on the whole, by Chimariko, and in some respects by Yuman.

Especially convincing as to genetic relationship is the correspondence between the Esselen noun ending *-nax*, *-nex*, and Yana *-na*.

On the side of phonetic constituents, it is surely significant that the only languages in California in which an *f* occurs are Karok, Pomo, and Esselen; also that *v* is found, outside of Shoshonean, only in Karok and Yuman.

Structurally, the Hokan languages are not so well understood as the Penutian. Esselen has perished with only a few scraps preserved, Chimariko is as good as extinct and only partially recorded, Yuman is very little known, and Yana and Shasta have not been described. Nevertheless certain common features of grammar are plain. Among these are:

No plural form for most nouns.

Frequent pairs of distinct verb stems identical in meaning except that one is singular and the other plural.

Verb suffixes indicating plurality.

Verb prefixes denoting the instrument and verb suffixes denoting local relations.

"Conjugation" of the verb by affixed pronominal elements, usually prefixes.

Yana, which is throughout a suffixing language, is the most difficult to reconcile to the type of structure characteristic of the family, but is so obviously related in many important stems, that the problem which it presents is not whether it is to be considered genetically akin, but how its grammatical peculiarities are to be explained.

The Hokan family is not confined to California. Shasta extends into Oregon, and Yuman is spoken mainly in Arizona and Lower California. It is therefore not unlikely that new relatives of the group remain to be discovered, even in addition to such probable though unproved congeners as Seri.

#### ISKOMAN

An apparent structural similarity of Chumash and Salinan was long ago noted by the authors, but as in the case of Yurok and Wiyot, lexical resemblances, while occurring, are to date not conspicuous. A presumption favorable to relationship may however be properly entertained on the basis of existing knowledge.

	CHUMASH	SALINAN
water	<i>o, io</i>	<i>t-a, tš-a</i> (ocean)
rabbit	<i>qun</i>	<i>kol</i> (jack-rabbit)
jack-rabbit	<i>ma</i>	<i>map</i> (rabbit)
arm	<i>pu</i>	<i>-ipokou</i>
sky	<i>alapa</i>	<i>lem, lemak</i>
coyote	<i>alaxüwul</i>	<i>elka</i>
stone	<i>xöp</i>	<i>-xap, tš-xa</i>
dog	<i>hulšu, wulšu</i>	<i>otšo</i>
ground squirrel	<i>emet</i>	<i>-emko'm</i>
two, four	<i>iškom, škumu, paksi</i>	<i>kiša, kakiše</i>
ten	<i>tuyimili</i>	<i>tsoe</i>
sixteen	<i>peusi, peta</i>	<i>kpeš</i>

Several of the above words lend themselves to the hypothesis of a connection between Hokan and Iskoman: water, house, sky, stone, two. To these may be added blood, Chumash *axulis*, Hokan *ax-*; no, Chumash *pwo*, Hokan *po-*; tongue, Salinan *pal*, Hokan *p-l*; salt, Salinan *akai*, Hokan *aki, asi*.

It is however idle to discuss further a possible relationship between Iskoman and Hokan, when the genetic connection between the members of Iskoman is scarcely yet a matter of demonstrable proof, probable though it may seem.

## RITWAN

A renewed examination, to which Dr E. Sapir has added several valuable contributions, reveals sufficient lexical correspondences between Yurok and Wiyot to make certain the genetic unity which structural similarities have previously indicated as possible.

MEANING	YUROK	WIYOT
person	<i>ol</i>	<i>di-wil-e, gu-wil</i> (man)
head	<i>-mol</i>	<i>-wet</i>
eye	<i>-lin</i>	<i>-lir</i>
mouth	<i>-lul</i>	<i>-lul</i>
tooth	<i>-peL</i>	<i>-pt</i>
hand	<i>-tsewec</i>	<i>-we's</i>
foot	<i>-is'qa</i>	<i>ickatc</i> (leg)
leg	<i>-lpił</i>	<i>-liL</i> (foot)
penis	<i>-xkwet</i>	<i>-dgat</i>
vagina	<i>-Lpol</i>	<i>-bec</i>
fæces	<i>-moloX</i>	<i>me'l</i>



MEANING	YUOK	WIYOT
bone	-ker	-kerat
heart	<i>tseukc</i>	-swetsa'
body-part prefix	<i>werL-, weL-</i>	<i>wat-</i>
water	<i>pā'</i>	<i>pāk</i> (ocean)
stream	<i>weroi</i>	<i>weraici</i> (water)
fire	<i>mets</i>	<i>mes, wes</i>
smoke	<i>mera-</i>	<i>bi'wur</i>
sky, up	<i>won-</i>	<i>wen, wir-</i>
house	<i>olomeL</i>	<i>mol</i>
bow	<i>camot, cmoxter</i>	<i>cwat</i>
fathom (on numeral stems)	-emoi	-ewan
dentalium-strings	-etani (on numeral stems)	<i>reni</i>
elk	<i>mewiL</i>	<i>me'lakw</i>
deer	<i>pūk</i>	<i>būl-caweti</i> (deer-white)
skunk	<i>watseL</i>	<i>botcwi</i>
eagle	<i>taxteL</i>	<i>di'l</i>
down stream, north	<i>pul-</i>	<i>wur-</i>
large	<i>pelin, pleli</i>	<i>bel</i> (flat, wide)
jump	<i>layo</i>	<i>lal</i>
sing	<i>ruraw</i>	<i>lalisw</i>
like, love	<i>ckewok</i> (ckui, good)	<i>di-cgam</i>
take, catch, hold	<i>olo</i>	<i>wol-ew, olo-wo</i>
one	<i>qots-, goreu</i>	<i>guts, go't</i>
two	<i>ni'iL, nā'ā-</i>	<i>rit-</i>
three	<i>naxk-</i>	<i>rik-</i>
I, my	<i>nek, ne-</i>	<i>yil, ru-</i>
you	<i>qel</i>	<i>kil</i>
that	<i>ku</i>	<i>gu-r, gu</i>
that	<i>ki</i>	<i>gi-c</i> (this)

The following are less certain:

child	<i>hukca</i>	<i>hetca</i>
nail	-kele	-(t)kan (metathesis?)
hair	-lep, -leptāL	-bal (metathesis?)
tail	-tpeL	-hel
earth	<i>lqel</i>	<i>lagerak</i>
liver	-kun	<i>tcegeL</i>
sick	<i>cā'</i> (ghost)	<i>cakw</i>
married woman	<i>winoc</i>	<i>wis-iL</i>

#### CONCLUSIONS

Taking into account only those languages from which testimony is presented, the authors feel certain that on the one hand Wintun,

Maidu, Yokuts, Miwok, and Costanoan must be reduced to the single Penutian family, and on the other hand Shasta, Chimariko, Karok, Pomo, Esselen, and Yuman to the Hokan family. This makes two families in place of eleven, and twelve in the whole of California in place of twenty-one. Assuming however that every connection here intimated as probable, will ultimately hold good, sixteen families consolidate to four, even without pressing the suggestion of affinity between Hokan and Iskoman. Of the five not involved, four are mainly extra-Californian. These are Shoshonean, Washo, Lutuami, and Athabaskan. The fifth is Yuki, which remains isolated. On this basis the only purely or principally Californian families would be five: Penutian, Hokan, Ritwan, Iskoman, and Yuki; and the total number in any way represented in the state, nine, instead of twenty-one. That this basis is sound, and the probability, as here outlined, a certainty, the authors hope to demonstrate when their full evidence can be presented.